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10/757,476

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EXAMINER

BODDIE, WILLIAM

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/757,476	Applicant(s) MOON, SEONG-HAK	
	Examiner William L. Boddie	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3 and 5-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 5-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                      | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____  |

### DETAILED ACTION

1. In an amendment dated, July 3<sup>rd</sup>, 2007, the Applicant amended claims 1, 8-9, 14, 17 and cancelled claim 22. Currently claims 1, 3, and 5-21 are pending.

### *Response to Arguments*

2. Applicant's arguments with respect to claims 1, 3, and 5-21 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 3 and 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kubota et al. (US 5,754,155).

**With respect to claim 1**, Kubota discloses, an apparatus (fig. 1) for driving a flat display panel (LCD panel; 1 in fig. 1) comprising a scan driving unit (11 in fig. 1) for controlling an upper voltage value (V<sub>gh</sub> in fig. 1) and a lower voltage value (V<sub>gl</sub> in fig. 1) which are applied to an integrated circuit (IC) (3 in fig. 1) for driving a scan electrode (GL in fig. 1) of a flat display panel,

wherein the scan driving unit comprises an amplifying unit (13b in fig. 4) for at least amplifying the upper voltage value applied to the scan driving unit to a predetermined level or converting the upper voltage value applied to the scan driving

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unit to a current and amplifying the converted current to a predetermined level (col. 9, line 61 – col. 10, line 21).

**With respect to claim 3**, Kubota discloses, the apparatus of claim 1 (see above) wherein the amplifying unit comprises an operational amplifier (op-amp) (clear from fig. 4; col. 9, line 66).

**With respect to claim 14**, Kubota discloses, an apparatus (fig. 1) comprising:  
a scan driving unit (11 in fig. 1) to control an upper voltage value ( $V_{gh}$  in fig. 1) and a lower voltage value ( $V_{gl}$  in fig. 1) to be applied to a circuit (3 in fig. 1) for driving a scan electrode (GL in fig. 1) of a flat display panel (1 in fig. 1), the scan driving unit including an amplifying unit (13b in fig. 4) for at least one of amplifying the upper voltage value applied to the scan driving unit to a predetermined level or converting the upper voltage value applied to the scan driving circuit to a current and amplify the converted current to a predetermined level (col. 9, line 61 – col. 10, line 21).

**With respect to claim 15**, Kubota discloses, the apparatus of claim 14 (see above), wherein the amplifying unit comprises an operational amplifier (clear from fig. 4; col. 9, line 66).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,754,155) in view of Furuhashi et al. (US 6,756,958).

**With respect to claim 5**, Kubota discloses, the apparatus of claim 1 (see above), wherein the amplifying unit comprise an OP-AMP (clear from fig. 4; col. 9, line 66).

Kubota does not expressly disclose, a transistor connected to an output terminal of the OP-AMP.

Furuhashi discloses, wherein an amplifying unit for a LCD scan driver comprising an OP-AMP (313 in fig. 2; col. 4, lines 17-23) and a TR (314 in fig. 2; col. 4, lines 19-23) connected to an output terminal of the OP-AMP (clear from fig. 2).

Furuhashi and Kubota are analogous art because they are both from the same field of endeavor namely, LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to including the transistors of Furuhashi in the amplifying circuitry of Kubota.

The motivation for doing so would have been to enhance the picture quality (Furuhashi; col. 2, lines 16-21).

7. Claims 6-7 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,754,155) in view of Kudo (US 6,118,425).

**With respect to claim 6**, Kubota discloses, the apparatus of claim 1 (see above), wherein the scan driving unit further comprises:

an upper voltage generating unit (upper half of 13b in fig. 4) for outputting the upper voltage value ( $V_{gh}$  in fig. 4); and

a lower voltage generating unit (lower half of 113b in fig. 4) for outputting a lower voltage value ( $V_{gl}$  in fig. 4).

Kubota does not expressly disclose outputting the upper and lower voltage values on the basis of control signals.

Kudo disclose, a LCD power supply (fig. 12) comprising:

an upper voltage generating unit (231 in fig. 12) for outputting an upper voltage value ( $V_{yh}$  in fig. 12) on the basis of an upper switching control signal (CCH in fig. 12);  
and

a lower voltage generating unit (232 in fig. 12) for outputting a lower voltage value ( $V_{yl}$  in fig. 12) on the basis of a lower switching control signal (CCL in fig. 12).

Kudo and Kubota are analogous art because they are both from the same field of endeavor namely, LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the switching circuitry of Kudo in the driver circuitry of Kubota.

The motivation for doing so would have been reduce shadowing and display irregularities (Kudo; col. 2, lines 39-52).

**With respect to claim 7**, Kubota and Kudo disclose, the apparatus of claim 6 (see above).

Kubota further discloses, wherein the scan driving unit selectively outputs one of the outputted upper voltage value ( $V_{gh}$  in fig. 4) and the outputted lower voltage value ( $V_{gl}$  in fig. 4), on the basis of a timing control signal (TIM in fig. 20).

**With respect to claim 16**, Kubota discloses, the apparatus of claim 14 (see above), wherein the scan driving unit further comprises:

an upper voltage generating unit (upper half of 13b in fig. 4) for outputting the upper voltage value ( $V_{gh}$  in fig. 4); and

a lower voltage generating unit (lower half of 13b in fig. 4) for outputting a lower voltage value ( $V_{gl}$  in fig. 4).

Kubota does not expressly disclose outputting the upper and lower voltage values on the basis of control signals.

Kudo disclose, a LCD power supply (fig. 12) comprising:

an upper voltage generating unit (231 in fig. 12) for outputting an upper voltage value ( $V_{yh}$  in fig. 12) on the basis of an upper switching control signal (CCH in fig. 12); and

a lower voltage generating unit (232 in fig. 12) for outputting a lower voltage value ( $V_{yl}$  in fig. 12) on the basis of a lower switching control signal (CCL in fig. 12).

Kudo and Kubota are analogous art because they are both from the same field of endeavor namely, LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the switching circuitry of Kudo in the driver circuitry of Kubota.

The motivation for doing so would have been reduce shadowing and display irregularities (Kudo; col. 2, lines 39-52).

**With respect to claim 17**, Kubota and Kudo disclose, the apparatus of claim 16 (see above).

Kubota further discloses, wherein the scan driving unit selectively outputs one of the outputted upper voltage value ( $V_{gh}$  in fig. 4) and the outputted lower voltage value ( $V_{gl}$  in fig. 4), on the basis of a timing control signal (TIM in fig. 20).

**With respect to claims 18-21**, Kubota and Kudo disclose, the apparatus of claim 16 (see above).

Kudo further discloses, wherein the upper and lower voltage generating units comprise switching devices (231-232 in fig. 12) which are switched on/off on the basis of the upper and lower switching control signals (CCH and CCL in fig. 12).

8. Claims 8-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 5,754,155) in view of Kudo (US 6,118,425) and further in view of Kishi et al. (5,786,794).

**With respect to claims 8, 10 and 12**, Kubota and Kudo disclose, the apparatus of claims 6 and 7(see above).

Kudo further discloses, wherein the scan driving unit further comprises switching devices (231-232 in fig. 12) which are switched on/off on the basis of the upper and lower switching control signals (CCH and CCL in fig. 12).

Neither Kubota nor Kudo expressly disclose, wherein the switching devices have a push-pull form turned on/off on the basis of the upper and lower switching control signals.

Kishi discloses, a LCD driver circuit wherein voltage generating unit comprises switching devices (TR6 and TR7 in fig. 1) having a push-pull form (col. 6, line 66 – col. 7, line 5) turned on/off on the basis of a switching control signal (col. 10, lines 37-61).



Kubuto, Kudo and Kishi are all analogous art because they are all from the same field of endeavor, namely LCD scan driver voltage supply circuitry.

At the time of the invention it would have been obvious to one of ordinary skill in the art to construct the voltage selectors of Kudo and Kubuto out of the push-pull transistor form taught by Kishi.

The motivation for doing so would have been both the low manufacturing costs and simple design associated with a push-pull transistor circuit.

**With respect to claims 9, 11 and 13**, Kubota, Kishi and Kudo disclose, the apparatus of claims 8, 10 and 12 (see above).

Kishi further discloses, wherein the switching devices comprise a FET (col. 10, lines 48-53).

### ***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to William L. Boddie whose telephone number is (571) 272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Wlb  
8/16/07



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